

Appl. No. 10/676,553
Amdt. Dated May 5, 2005
Reply to Office Action of March 22, 2005

The listing of claims will replace all prior versions, and listings of the claims in the application.

1. (currently amended) A machine tool installation for laser cutting of sheet workpieces comprising:

- (a) a workpiece support;
- (b) an elongated machine frame of generally C-shaped configuration providing an arm extending over said workpiece support and having portions extending beyond the ends of said workpiece support to provide loading and unloading stations;
- (c) a track on the lower surface of said arm and extending longitudinally of said frame;
- (d) a motion unit [is] suspended from said track and mounted for movement therealong and having its outer [with one] end located adjacent the outer side of said workpiece support, said motion unit being supported on said track adjacent its center to increase its stiffness, said motion unit including means engageable with transport means to transport workpieces from the loading station onto said workpiece support and machined workpieces from said workpiece support to the unloading station;
- (e) drive means for moving said motion unit bidirectionally along said track;

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(f) a laser cutting unit mounted on the lower surface of said motion unit and including a laser cutting head movable [thereon] on said motion unit in an axis perpendicular to said machine frame arm, said cutting head being readily accessible in said cutting unit for servicing and replacement, said motion unit having guides on its lower surface extending perpendicularly to said machine frame arm, said laser cutting unit being movably mounted on said motion unit guides;

(g) drive means for moving said laser cutting unit along said motion unit, said laser cutting unit being movable on said motion unit to said [unit] one end of said motion unit on the outer side of the workpiece support for facile servicing thereof by an operator; and

(h) a controller operable to control movement of said motion unit along said track to effect motion of said motion unit and of said laser cutting head relative to a workpiece on said workpiece support to produce cut parts, and to position said laser cutting unit at said one end of said motion unit adjacent said outer side of said workpiece support [unit] for servicing, said laser cutting head being readily removable from said cutting unit by an operator standing in front of the machine tool installation at such outer side of said workpiece support to facilitate servicing and replacement of said cutting head.

2. (original) The machine tool installation in accordance with Claim 1 wherein a pair of parallel tracks are provided on said arm of said machine frame and said motion unit is movable thereon.

3. (original) The machine tool installation in accordance with Claim 1 wherein said motion unit drive means comprises a rack on said arm of said machine frame, a pinion on said motion unit engaged with said rack, and a bidirectional motor for driving said pinion.

Claim 4 (canceled)

5. (original) The machine tool installation in accordance with Claim 4 wherein said laser cutting unit is movable on said motion unit guides by a rack and pinion drive assembly and a reversible drive motor.

6. (original) The machine tool installation in accordance with Claim 4 wherein laser cutting of the workpiece in the longitudinal direction of the frame (X-axis) is effected by movement of said motion unit on said track and cutting in the direction perpendicular thereto (Y-axis) is effected by movement of said laser cutting unit along said guides on said motion unit.

7. (original) The machine tool installation in accordance with Claim 6 wherein said laser cutting unit includes a drive for moving the laser cutting head in the vertical direction.

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Claim 8 (canceled).

9. (currently amended) A machine tool installation for laser cutting of sheet workpieces comprising:

- (a) a workpiece support;
- (b) an elongated machine frame of generally C-shaped configuration providing an arm extending over said workpiece support and having portions extending beyond the ends of said workpiece support to provide loading and unloading stations;
- (c) a pair of tracks on the lower surface of said arm and extending longitudinally of said frame;
- (d) a motion unit [is] suspended from said tracks and mounted for movement therealong [with one] and having its outer end located adjacent the outer side of said workpiece support, said motion unit being supported on said tracks adjacent its center to increase its stiffness, said motion unit including means engageable with transport means to transport workpieces from the loading station onto said workpiece support and machined workpieces from said workpiece support to the unloading station;
- (e) drive means for moving said motion unit bidirectionally along said tracks, said drive means comprising a rack on said arm of said machine frame, a pinion on said motion unit engaged with said rack, and a bidirectional motor for driving said pinion;

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(f) a laser cutting unit mounted on the lower surface of said motion unit and including a laser cutting head movable [thereon] on said motion unit in an axis perpendicular to said machine frame arm, said cutting head being readily accessible in said cutting unit for servicing and replacement, said motion unit having guides on its lower surface extending perpendicularly to said machine frame arm, said laser cutting unit being movably mounted on said motion unit guides, said laser cutting unit including a drive for moving the laser cutting head in the vertical direction;

(g) drive means for moving said laser cutting unit along said motion unit, said laser cutting unit being movable on said motion unit to said one end of said motion unit on the outer side of the workpiece support for facile servicing thereof by an operator; and

(h) a controller operable to control movement of said motion unit along said track to effect motion of said motion unit and of said laser cutting head relative to a workpiece on said workpiece support to produce cut parts, and to position said laser cutting unit at said one end of said motion unit adjacent said outer side of said workpiece support [unit] for servicing, said laser cutting head being readily removable from said cutting unit by an operator standing in front of the machine tool installation at said outer side of said workpiece support to facilitate servicing and replacement of said cutting head.

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10. (currently amended) A machine tool installation for laser cutting of sheet workpieces comprising:

- (a) a workpiece support;
- (b) an elongated machine frame of generally C-shaped configuration providing an arm extending over said workpiece support and having portions extending beyond the ends of said workpiece support to provide loading and unloading stations;
- (c) a pair of tracks the lower surface [on] of said arm and extending longitudinally of said frame;
- (d) a motion unit [is] suspended from said tracks and mounted for movement therealong and having its outer [with one] end located adjacent the outer side of said workpiece support, said motion unit being supported on said track adjacent its center to increase its stiffness, said motion unit including means engageable with transport means to transport workpieces from the loading station onto said workpiece support and machined workpieces from said workpiece support to the unloading station said motion unit having guides on its lower surface extending perpendicularly to said machine frame arm;
- (e) drive means for moving said motion unit bidirectionally along said track;

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(f) a laser cutting unit mounted on the lower surface of said guides of said motion unit and including a laser cutting head movable [thereon] on said motion unit in an axis perpendicular to said arm, said cutting head being readily accessible in said cutting unit for servicing and replacement, said motion unit having guides on its lower surface extending perpendicularly to said machine frame arm, and said laser cutting unit being movably mounted on said motion unit guides;

(g) drive means for moving said laser cutting unit along said motion unit, said laser cutting unit is movable on said motion unit guides by a rack and pinion drive assembly and a reversible drive motor, said laser cutting unit being movable to said one end of said motion unit on the outer side of the workpiece support for facile servicing thereof by an operator, laser cutting of the workpiece in the longitudinal direction of the frame (X-axis) being effected by movement of said motion unit on said tracks and cutting in the direction perpendicular thereto (Y-axis) is effected by movement of said laser cutting unit along said guides on said motion unit; and

(h) a controller operable to control movement of said motion unit along said track to effect motion of said motion unit and of said laser cutting head relative to a workpiece on said workpiece support to produce cut parts, and to position said laser cutting unit at said one end of said motion unit adjacent said outer side of said workpiece support [unit] for servicing, said laser cutting head being readily removable from said cutting unit by an operator standing in front of the machine tool installation at said outer side of said workpiece support to facilitate servicing and replacement of said cutting head.